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NOTE ON THE OHIO PLACODERM
DINICHTHYS TERRELLI

IN a recent paper¹ Professor Branson describes and figures a specimen of the Devonian "fish" *Dinichthys terrelli*, in the Oberlin collection—a specimen evidently of great value, for it presents for examination many parts, largely in their natural relations, of one and the same individual. Similar specimens, as one recalls (not without chagrin) have earlier been found, and possibly even better ones, but their parts have never been kept together: for the zeal of pioneer collectors led them to separate all possible plates from the matrix, and caused the destruction of smaller undetachable elements, leading, naturally, to a less complete understanding of the anatomy of the "fish." In the present case Dr. Branson has been able to add interesting notes to our knowledge of this classic fossil; he has shown especially that the "clavicular" element of this species is smaller in its proportions than has hitherto been described, and he notes, very justly in this regard, that the restoration of the huge head of *D. terrelli* exhibited in the American Museum of Natural History, "makes the animal much thicker dorsal-ventrally than it should be." His comments, however, are less convincing which concern the actual relations of this plate. We have known that its upper part fitted between the antero-dorso-lateral and the side of the cranium, we have not known, though, just how the plate was placed at the side of and below the suborbital, and the present specimen, in spite of its many virtues, does not appear to clear up this point. Dr. Branson's conclusion that "the inner arm of the clavicular must have come inside the clavicular and prevented the mandible from resting against it" is not quite evident, since it is based upon a "left clavicular (which) lies on the right side, on top of the right clavicular which has lost its lower end." For, unhappily, it is the lower end of this plate which concerns us, and we can not, therefore, feel sure that a plate which has become detached

and shifted, will make clear its real relations to the plates near which it happens to lie. We may note in passing that several elements are present in the Oberlin specimen which, as far as we can judge from the picture, appear to have been earlier described, but never relatively in their natural positions; one of these is here shown close to the outer end of the interlateral plate, near a point where another plate should occur, by analogy with *Coccosteus*, but where no element is definitely known.

BASHFORD DEAN

THE NUMBER OF STUDENTS TO A TEACHER IN
STATE COLLEGES AND UNIVERSITIES

TO THE EDITOR OF SCIENCE: In the table published in your issue of October 27 the University of Minnesota was listed as having one teacher to every twenty-six students. The situation in this institution is by no means what it should be in this regard, but the ratio indicated above is so wide of the mark that I immediately looked up the figures upon which the estimate was based. A copy of the report to the Commissioner of Education is on file here. An examination of the report shows that in the total number of students all the students in the schools of agriculture, which are schools of secondary grade, were included. On the other hand the instructors in these schools were not included in the total of teachers. When this correction is made the ratio is changed from 1 to 26 to 1 to 16. As an average for all departments of the university this is probably approximately correct.

It seems desirable that some system of uniform and comparable statistics should be worked out. For example, there seems to be no definite understanding as to what constitutes a "teacher." Is a man giving himself wholly to research in a laboratory or in an observatory to be reckoned as a teacher? Is a clinical professor who gives part of his time to instruction in a school of medicine to be counted as a whole teacher, or such fraction of a teacher as is determined by the proportion of normal instruction which he offers?

The "students" need to be more carefully defined. Is the unit the individual without

¹ University of Missouri, Bulletin, Vol. 2, No. 2, October, 1911.

reference to the length of his residence? Is the summer student at Columbia or Chicago, who may be in attendance for six weeks to be reckoned in the total on the same basis with students who are in residence for nine months? Until these things can be determined our statistics will have little value.

GEORGE E. VINCENT

To THE EDITOR OF SCIENCE: In your issue of October 27 Mr. Handschin gives statistics from 81 state-supported schools, regarding the number of students to a teacher. These are based on the report of the U. S. Commissioner of Education. I fear that their main use is to illustrate the fact that such statistics often have very little value for purposes of comparing the several institutions.

The University of Wisconsin, for instance, is said to have 7.9 students per teacher, while the University of Michigan is given 15. No one can believe that if these institutions were compared on equal terms one would be found to have nearly twice as many students per teacher as the other. I do not know whether the statistics regarding Michigan are correct, or not, but the figure for Wisconsin conveys a wholly wrong impression. In the number of the Wisconsin faculty, as stated by the U. S. Commissioner of Education, are included the staff of the Agricultural Experiment Station, who do no teaching, and that of the Extension Division, whose students are not included in the catalogue. Thus the real number of students per teacher is greater than that indicated by the report.

The number of "student hours" in the College of Letters and Science has been recently computed. These are ascertained by multiplying the number of students reported in each course of study by the number of credits given for the course. If the sum of these products is divided by 15—the standard number of credits per semester—the result for 1910-11 shows a little over 3,000 "full time students" taught by the faculty of that college. If this number is divided by that of the faculty, the quotient shows 11.1 students per teacher. If the number of assistants in laboratories and

elsewhere, who are employed for only partial service, is reduced to that of the full time instructors who would render the same amount of teaching, the number of students for each instructor is 13.3. In the college faculty are included the teachers and executive officers of the college, but not the executive officers of the university nor the staff of the gymnasium, library, etc.

An investigation made by President Van Hise before these statistics were compiled, and covering the whole university, shows about one teacher for 12 students—a result which is not widely different from that stated above for the college.

It is quite probable that if the number of students per teacher were determined in state universities of similar size on a basis which would yield comparable results, the figures would show no such wide differences as are found in Mr. Handschin's list.

E. A. BIRGE,
Dean

MADISON, WISCONSIN,
November 1, 1911

SINCE the tabulations on "The Number of Students to a Teacher in State Colleges and Universities" were published in SCIENCE, October 27, some communications have come to the writer complaining of the inaccuracy of the figures. The writer explained that inasmuch as he based his figures on data supplied to the U. S. Bureau of Education by the authorities of the schools themselves, he feels no responsibility in the matter. Evidently some schools have not been over-accurate in reporting their data.

However, this brings up the question of establishing common criteria as to who shall be counted a teacher. This matter has been brought to the attention of the U. S. Commissioner of Education with a petition that he establish some standard which might be incorporated in the blanks which are sent out to receive the data.

Who shall be counted a member of the instructional force? The following suggestions are offered: First, the tabulations should be

made under several heads, as, *e. g.*, professors, associate professors, assistant professors, resident lecturers (librarians and medical directors might be counted here), instructors, and student assistants.

But counting a person a full teacher merely because he teaches the average number of hours, gives no proper estimate of the strength of the school. The salaries paid, if taken in connection with the number of teachers, may well furnish such an index. Thus if six grades of instructors are tabulated as suggested above, and in addition, the sum-total of salaries paid for *instruction* is given, that should suffice to give an equitable rating, as well as to convey explicitly the information desired.

CHARLES HART HANDSCHIN

QUOTATIONS

THE PROPOSED REFORM OF THE CALENDAR

In the issue of *Nature* for April 27 a concise account was given of the various proposals which have recently been put forward for the reform of the calendar. There is no reason to think that the subject has gained any serious general attention in England, if the fixing of Easter and the dependent festivals be regarded as a distinct question. But it has received a certain recognition in the discussions of some public bodies of an international character, such as the Congress of Chambers of Commerce; and the Swiss government has invited a conference for its formal consideration. In order to bring a definite scheme before the public a Calendar Reform Bill was presented to Parliament by Mr. Robert Pearce. The main features of the bill were briefly described in the article quoted. The first day of the year is called New Year Day, and is placed outside the reckoning of the week and the month. In leap years a day called Leap Day is intercalated between the end of June and the beginning of July, and is equally excluded from the week and the month. By this device there are left 364 days in every year, which are divided into four equal quarters of 91 days. Each quarter is subdivided into three months containing respectively 30, 30 and 31 days.

Since 364 is exactly divisible by seven, the first of January always falls on the same day of the week, and the result of making this day Monday is to give 26 weekdays in every month, the four longer months containing five Sundays. Every calendar date corresponds to a particular day of the week (*e. g.*, Christmas Day always falls on a Monday), and the calendar is fixed, no longer changing as at present from year to year.

No doubt such a system possesses slight advantages from the point of view of simplicity over our present calendar. Apart from the objections which must be urged against any disturbance of conventions to which we have grown accustomed on anything less than adequate grounds, the great disadvantage attaches to the scheme that it interrupts the continuity of the weeks. The practical effect of this is seen where two or more calendars are in use side by side. Thus inconvenience must arise even now from the Jewish Sabbath falling on our Saturday. Under the provisions of the Calendar Reform Bill the case would be worse, for it would no longer hold a fixed place in the Christian week.

A second bill has now been presented to Parliament, this time by Sir Henry Dalziel. While differing from Mr. Pearce's bill, the new proposals contain nothing of importance which will be novel to readers of our previous article. For the bill merely embodies the suggestions made by Mr. John C. Robertson at the fourth International Congress of Chambers of Commerce held in London in June, 1910. The differences arise in the treatment of the four quarters of 91 days. These are divided into three months containing respectively 28, 28 and 35 days. Thus each month contains an exact number of weeks, and is made to begin with a Sunday. Incidentally, it is necessary to move Easter Sunday from April 14, as before proposed, to April 15. Also Christmas Day will fall automatically on a Wednesday instead of on a Monday. The advantage of the whole scheme is to obtain commensurability between the month and the week, but it is an advantage dearly bought at the sacrifice of even approximate equality between the